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JOHN N. DALTON, GOVERNOR

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COVER: Pintail Duck, by Robert Clontz, Smithfield

Editorial

NONCONSUMPTIVE USE: A MYTH

GUEST EDITORIAL

People who love wild things and green places are immersed in a tremendous, global struggle to instill ecologic common sense and environmental ethics in human thought and action, before it is too late. At a time when we are desperate for the strength of unity, we pick bitter fights with each other.

One of the most widespread, divisive and irrational of these squabbles centers around consumptive vs. nonconsumptive uses of wildlife. The popular test is simple: if you hunt, trap or fish, you are a consumptive user; if you photograph, watch, paint or study wildlife, you are a nonconsumptive user.

From the phrasings of their articles, the mood of their films, and the smugness, paternalism or vituperation of their dealings with hunters, it is obvious that many who do not hunt or fish, have a holier-than-thou attitude towards those who do. "Your hands are bloody; mine are clean. Your heart is crass and vile; mine is pure and Olympian." Can this attitude stand the light of day?

I visited Ano Nuevo Point, north of Santa Cruz, California with my family to watch the elephant seals. Looking closer, we saw that several seals had been spray-painted with good old American graffiti. As we watched, a troop of youngsters jumped off the sandy bank onto the backs of the seals. Something, I maintained, was being consumed.

A recent issue of *Audubon* magazine briefly tells of a new problem interrupting the nesting of birds. Birdwatchers get a recording of the bird's territorial call, march out and play the tape loudly. If an answer comes, another bird is checked off the list.

The journal *Biological Conservation* reported in 1974 that human traffic on British beaches had eliminated the Kentish plover as a breeding species. The little tern is suffering the same stresses in Sweden as is a colony of arctic terns on Cape Cod.

Elementary and high school classes have all but stripped many California beaches bare of the bigger, easily found and colorful species of tidepool and beach animals.

No fingers are being pointed. My intent, in fact, is to make anyone who has a scornful or accusing finger pointed at anyone else, to realize that we are all consumers of wildlife.

There is no such thing as a nonconsumptive user of wildlife. There are only consumers who care and consumers who don't care.

Robert Weeden, Professor of Resource Management, University of Alaska, Fairbanks.

Condensed from an article in Alaska Conservation Review.

Letters

CORRECTION

The illustrator's name was not listed in my "Hunter's Guide to Wildflowers" that appeared in your November issue. He was Robert J. Hurley. Thanks for correcting the error.

Donald G. Jewell
Baltimore, Maryland

PRIVATE LAND ONLY!

Your article on hunting arrowheads in the October issue did not specify that such activity is limited to private lands. On national forests and parks, such artifacts are protected by the Antiquities Act of 1926 and visitors are not allowed to disturb or collect them. On state lands, arrowheads and other such artifacts are the property of the state.

Paul Schrauder
Jefferson National Forest
Roanoke

PRAISE FOR OWL COVER

I can't agree with the man from Connecticut that the cover on the August issue is disgusting. It is nature's way. Why not just explain to the younger generation that this is the way the owl survies. You can't protect children from all the unpleasantness of life. Better to give them some information on what to expect, the shock won't be so great when it arises.

Mae Hickman
Marshall

Only a vegetarian is justified in describing nature's food chain as disgusting. If your protester doesn't fall into this category, I suggest he think twice the next time meat is on his grandchildren's table.

E. Miner
Fairfax

DISAGREEMENT

In your October issue, Donald Stein said: "The building of the world of men involves necessarily the destruction of nature." To destroy nature is to destroy man. To refuse to recognize man's complete dependence on the world of nature is a contribution to the morass of planetary inbalance we have already started.

Dr. H. W. Helberg, Jr.
Richmond

WALTON FAN

As a subscriber to *Virginia Wildlife*, I am always impressed with the contents and particularly the art work. For example, Lucille Walton's illustrations capture the very essence of nature and art. Please let us have one of her illustrations used as a cover some month.

Thank you for a delightful magazine.

William C. Parrish
Vienna

Hunting With Sam

BY CHARLES D. BAYS

I wish I could, in good conscience, begin this story by saying I knew from the start the pup had what it takes to make an all-around bird dog — or at least be able to allude to this fact. The truth is, however, literally and figuratively, he was not my pick of the litter. He was my wife's favorite.

Sure, I'd agree, he was cute and maybe he did have darling brown eyes but I was after hunting ability, not a show dog. And besides, whoever saw a really ugly puppy? No, my decision was made; the little blond male would fare nicely at his new home with the owner of the litter's sire. But the cagey little canine, obviously happy at his present abode, had ideas to the contrary and even in his adolescence was shrewd enough to get his way.

As soon as he realized he was being deported to an alien land, he directed his watery gaze upward toward his stepmother, whose lap he occupied in the car, and shortly thereafter broke into a full-fledged crying fit. Tears no smaller than bantam eggs cascaded from his pitiful little face, which quickly resulted in a trio of harmonious sorrow, my wife and daughter joining in.

Two things about the ordeal still astound me: the first, how could a pup of such diminutive proportions cry such a vast amount of tears; secondly, why was it they ceased to flow as soon as I turned the car around? I still think I heard him snickering under his breath on the way back home.

Well, that was over six years ago and maybe things do work out for the best. Sam (at least I was allowed to name him) turned out to be a fair-to-middling bird dog, but there have been times he has erred.

Perhaps his most monumental blunder occurred on a cold December day during the 73-74 season. William

Breeding, a long-time hunting buddy, and I were pursuing the not-so-gentlemanly bobwhite quail on a spacious farm just east of Roanoke. We had hunted the back of this particular farm and were in the process of working our way toward a creek bottom of corn stubble and fall grass close to where we had left the truck.

We were still perhaps a hundred yards from our intended destination when we heard the report of a shotgun and saw two occupants in the field wildly swinging their arms and incessantly hollering: "Louie! Louie! Louie! Come in here Louie!"

One was dressed in a loud red outfit and bore an amazing resemblance to Santa Claus. The other wore more conventional attire, but both had shotguns. Their uncommon behavior caused me to think that surely three inmates had eluded some sort of institution, armed themselves, and the one named Louie had chosen to depart. Closer observation, however, revealed they were also bird hunters of sorts and Louie was their diminutive Brittany Spaniel. I'm not sure whether the Brittany's wrinkled brow indicated confusion or if he was simply discontent. However, of one thing I am positive: the tiny dog was surely deaf as there was no perceivable response to his master's vigorous directives.

"Sam is the best Friend I got. . . ."

My partner and I had decided to find a more placid setting in which to continue the pursuit of our favorite sport, when the Santa Claus look alike asked us to come over. Proper introduction revealed that Santa Claus was actually a noted lawyer, the other gentleman, a councilman. Their plight stemmed from the fact that, although they had been successful in knocking down a bird, Louie refused to find it.

"Will your dog find a dead bird?" the attorney asked.

"If it's on the ground old Sam will find it," I confidently replied.

Now recovery of dead birds is really not one of Sam's strong points, but as luck would have it he almost immediately located the dead bird and was in transit to deliver it to me when the attorney grabbed him by the collar.

"What in blazes do you think you're doing!" I snorted. "Let go of my dog!"

The lawyer complied, Sam delivered the bird, and I was only about halfway through my lecture on hunting etiquette when a sheepish grin spread across the lawyer's face.

At this time, Sam made the error. He followed me to the lawyer, and apparently after hearing my diatribe thought something was on fire. To him, what most resembled a fire must have been the attorney's brilliant red outfit and, as time was of the essence, he sought to extinguish the blaze by the most expeditious means at hand.

The councilman was beside himself. "Whatcha gonna do," he asked the Santa Claus lawyer, "sue him?"

In retrospect, perhaps I was too severe in my assessment of the lawyer's prior actions. He did use sound judgment in this instance, electing not to bring forth legal proceedings. Actually, however, there is little doubt in my mind his efforts would have proven anything but futile — the indignant dog would never have paid.

Sam is also independent — and businesslike — in the field and gives the impression he neither has the time nor the inclination to become involved in matters other than the location of the intended quarry. Only twice in his career have I seen him cease hunting before it was intended for him to do so. The first time followed a vicious fight with a wounded red fox, after which the dog required three days of medical treatment. The other instance was under entirely different circumstances and proved that the seemingly aloof setter was indeed capable of human compassion and sympathy.

It was an unusually warm day for the middle of January and I could easily see my old friend Rob was having a bad go of it, just keeping pace with Sam, Breeding and me. Now normally my somewhat rotund friend has little trouble enduring a full day of hard hunting and, as I recall, he tried to lay blame for his malady on the scrumptious breakfast I had prepared of country ham and eggs, along with a side order of fried spuds with diced onions mixed in. I, however, believed otherwise, knowing that a good part of his previous night had been spent in merriment and in the company of Mr. Beam and Mr. Daniels.

Long before high noon, I heard a rather undignified noise coming from behind and turned to see my friend folded over a woven wire fence like a dishrag over a clothesline. Breeding and I were only going to hunt a small circle and later return for our ill companion, but Sam, unaware of the circumstances that caused Rob's unfortunate state of being, thought we were totally abandoning him in his hour of dire need.

He ran to Rob's side with a compassionate look on his face, like I had never before, or since, witnessed. Now he looked bitterly at me as if to say, 'What manner of fellow would leave his buddy in this kind of shape!' If looks could kill. . . .

For only the second time in his life the setter refused to continue to hunt and only after Rob had righted himself and regained his composure did he do so. I'm sure I'll always remember that sight: Rob with arm around Sam, and Sam alternately expressing great compassion for Rob and sharp criticism of my loyalty to my fellow hunter and friend.

"Old Sam is the best friend I've got," Rob moaned as the hunt was continued.

The blond setter has always shown an uncommon fondness for furry animals in general, and rabbits in particular. As most owners of pointing dogs will agree, this is a questionable attribute to be neither relished nor cultivated. After a year or so afield and some serious discussion, I finally broke the dog of the unde-

sirable habit of chasing fur, but he will still, on occasion, point living creatures incapable of flight.

Perhaps the most memorable time this occurred was during a late November hunt in Bedford County. My partner for the hunt was Carl Webster, a Montvale dairyman of congenial nature. Carl had elected to cancel a rabbit hunt with his sons to join Sam and me on what I hoped would be a bird hunt worthy of his forfeiture. We were hunting good cover and Sam was working it well, but it was just one of those days when you couldn't buy a covey of birds.

During our nonproductive hunt we could hear the beagles' merry song and the occasional report of a 12 gauge, which certainly gave credence to Carl's good-natured remark.

"Should've gone rabbit hunting," he grinned.

Like an actor on cue, Sam almost immediately froze on a magnificent point.

"Maybe not," I replied, pointing to the staunch dog thirty yards ahead.

The brief walk to the immobile dog provided the two of us with what I profoundly believe will always be the most exciting few moments in any sportsman's life. Hearts pounding and guns at ready, we moved past Sam's nose in anticipation of the climactic clamor of airborne birds. But no covey rose; instead a camouflaged bunny spurted from under our feet, and in complete defiance of the law of gravity, projected itself no less than three feet into the air. Sam, being fully aware of the fact we had nothing in the game bag, did likewise. His acrobatic accuracy still amazes me.

Sam proudly delivered the goods, but I still felt it in good judgment to briefly admonish him for his undignified actions. Only after he continued on to hunt (and his back was turned), did I give my host the hare.

"Ask the boys to find where you shot that one," I said in an obviously transparent attempt to defend the setter's performance.

Sam can also be a showoff, preferring the dramatic to the conventional. On several occasions, I have seen dogs make beautiful points standing on three legs, usually with their right front paw tucked neatly and firmly under their chest; but who ever heard of a dog on point standing only on his two back legs? Showboating, purely and simply.

The first time Sam went into his vertical pointing routine was during a grouse hunt in nearby Rockbridge County. It was a most disagreeable day and thus far the game bag had no sag to it at all. That is when I noticed the dog standing quite still in a most unusual position, almost perpendicular with both front paws reaching as high as possible on the hollow chestnut stump and with a slight tilt to his head.

I wasn't sure whether my canine companion had gone bananas or if he actually was on some sort of unorthodox point. The dog held staunchly while I gave a jarring kick to the decaying remains of the once stately tree and the pullet-sized bird that erupted from within served as living testimony that Sam had neither gone berserk nor lied to his doubting master.

Unfortunately, at the time I was packing a loaded 20 gauge and not a loaded camera but the dog's extraordinary point did provide the delicious main course for that evening's meal.

In our six years of hunting together, Sam has set the dinner table for my family and friends numerous times, and more tasty victuals cannot be procured. But even in these inflationary times, one can usually somehow manage an occasional good meal.

It is, then, the thrill and excitement of the hunt itself — and the companionship of the dog — that make for lasting memories. For those of you who have never pursued the crafty bobwhite quail or the unpredictable ruffed grouse in the company of an intelligent dog, I urge you to do so. To have trained your canine companion greatly enhances the experience.

And as I am presumptuous enough to call myself a trainer, I will conclude with some advice that could prove beneficial to the aspiring novice. Upon viewing a litter of well-bred pups with the intention of selecting but one as your future field companion, it could very easily be that the pup with the most potential is the cute one over there with the darling brown eyes.

"Whoever heard of a dog on point standing only on his two back legs?"

Slob Fisherman

BY BILL COCHRAN

Illustration by Diane Grant

State fish officials got a call the other day that there were some dead fish along a creek in Bedford County. Not knowing whether a fish kill was taking place or what, a fisheries worker was dispatched to check it out.

What he found were nine adult striped bass scattered in a ditch. All contained hook marks.

Larry Hart, state supervising fish biologist, surmised that some fishermen had caught them in Smith Mountain Reservoir then went on a bragging binge, showing them off to friends and neighbors. Once these fishermen had satisfied their egos, they had no further use for the stripers, so they were dumped into a ditch.

"Just think of all the enjoyment someone else would have gotten from the fish if they'd been returned to the water once they were caught," said Hart.

Obviously, there still are many selfish slobs on our lakes and along our streams, people who think only of their own convenience and nothing of their fellow anglers or the natural resources that provide outdoor sports.

Striped bass fishing has more than its share of them, because these fish make big, handsome trophies, the kind fish hogs like to tote about.

No one species, however, has a patent on the slobs it attracts. Black bass fishing has its share. You'll not have to look long and hard to spot the slobs out Saturday, opening day of the trout season. Most streams will contain several per mile.

You won't escape them along the ocean front, either. They are the guys who get into the schools of bluefish at Hatteras and scatter the carcasses along the beach behind them.

To be sure, sport fish are in our streams, lakes and oceans, often stocked at great expense, as a means of enjoyment. They are there to be caught. But there is a distinct difference in making a sporting catch and exploiting a resource.

This isn't to imply that there is something wrong with bringing a fish or two home to eat, especially in this age of high food prices. To take them home for bragging and dumping into a ditch or garbage can, though, is wrong.

When you release a fish, carefully easing it unharmed back into its environment to provide recreation another day, you are proving yourself a real angler. Far more so than when you tote home gut-ripping stringers full of dead fish. You also are making a good investment in the future of fishing.

The welfare of the sport lies in how well anglers embrace the ethics of quality fishing by limiting their kill. There are too many of us carrying around rods and reels these days to tolerate fish hogs. The resource can't stand it.

For several years, Trout Unlimited, and later Bass, have been preaching the theory that a fish is just too valuable to be caught only once. Happily, fish can be a renewable resource.

"It is apparent that we must convince Virginia trout anglers to discard the meat fishing habit if our sport is to survive the human population explosion," warns Jerry Schuder, a Trout Unlimited official.

Schuder says even a foolish hatchery-bred trout can learn from experience and provide a challenge in the future if he is released unharmed by opening week anglers. Use flies or spinners, which enhance a trout's chances of surviving once released, and good trout fishing will last not just a few days but months.

Slobism shows up in more ways than just fish hogging. There's the littering problem, for example. Every year following the opening of trout seasons, state and federal officials must spend thousands of dollars cleaning the streams, streambanks and backwoods roads, says Dick Pennington, wildlife officer of the George Washington National Forest.

The trash ranges from tangles of monofilament line to empty salmon egg jars; beer cans to lunch wrappers. It doesn't take a computer to realize that a bit of litter from each fisherman soon becomes a mountain of trash.

On public lands, such as national forests, it means spending money to clean it up that could be put to better use on stream improvement projects, campgrounds, even more trout stocking.

On private land, leaving behind signs that you've been there, such as drink cans and candy wrappers, may well mean that the next time you visit the area you may find signs of another kind: "No Trespassing."

Fishermen who feel the rules of good sportsmanship are made for the other guy can ruin the sport for everyone. The question is, are we going to permit them to do it?

One of the best ways to rid fishing of slobs is to let them know, through our attitudes and actions, that they aren't appreciated, that, indeed, they won't be tolerated. For some, it might be a friendly reminder; for others, a date in court.

Like most worthwhile things, good sportsmanship begins at home. Do we instill in our own children a reverence for wild places and wild things and sportsmanship?

Also, maybe we'd better examine our own actions afield a bit. How do our ethics hold up out there on a lake all alone, or in a crowd of trout fishermen on opening day?

In a sport as beautiful as fishing, there simply is no place for dead striped bass in a ditch or litter along a trout stream.

Reprinted From The Roanoke Times and World News

THE RIVERS OF BUFFALO PASTURES

A canoe trip down one of the last unspoiled stretches of river in Virginia.

by Paul Bratton, Jr.

The sun-warmed days of the late winter anticipated the coming of spring in the Southern Appalachians. A skunk cabbage pushed through the frozen earth and the sugary sap was rising in the maples. But the late winter doldrums still rushed in with every overcast day, and spring seemed to recede again into the distant future.

Finally a winter rain melted the last patches of snow, flushing out the ice that had covered the rivers and streams of western Virginia. With the waters flowing free for the first time since December, I tied the canoe on the car top, piled gear in the back seat, and headed across Shenandoah Mountain to rediscover the Cowpasture River, free at last of its icy shroud.

The drive up the narrow valley revealed glimpses of the swollen, clear waters. At Williamsville the road forked, with one branch continuing up the Cowpasture River Valley. I took the other through the Bullpasture Gorge with the idea of starting the canoe trip by running the rapids that form where the Bullpasture River breaks through into the Cowpasture Valley.

One view of the foaming maelstrom of rock and water was good enough for my companion. Judy knows my enthusiasm can override my good sense, but I too had developed second thoughts. The roar of the icy water and a class 5 difficulty rating in Randy Carter's *Canoeing White Water* convinced us an alternative put-in on the upper Cowpasture was the wiser choice. We decided to leave the rapids in the Gorge for a time when the water was warmer and the canoe would not be laden with our packs.

The coltsfoot's first yellow-rayed flowers lined the gravel road near our starting point on the Cowpasture River. At a nearby mountain farm the sugar maples were hung with galvanized buckets and sap was boiling over open fires. Maple sugaring is possible only in the spring when the sap is at its peak flow. Canoeing on headwater streams is just as ephemeral, lasting only as long as the high waters of early spring, or for a few days after heavy rains.

A highway bridge provided our access to the river where we transferred packs and other gear from the car to the canoe. We scraped the aluminum canoe through the first rocky riffles and the passage was barely wider than the canoe at times. The excitement of canoeing headwater streams lies partly in the narrowness of the channel and the numerous bends. Just around the next bend might lie a hidden rapids, a sweeper blocking the channel, or even a barbwire fence stretched across the water.

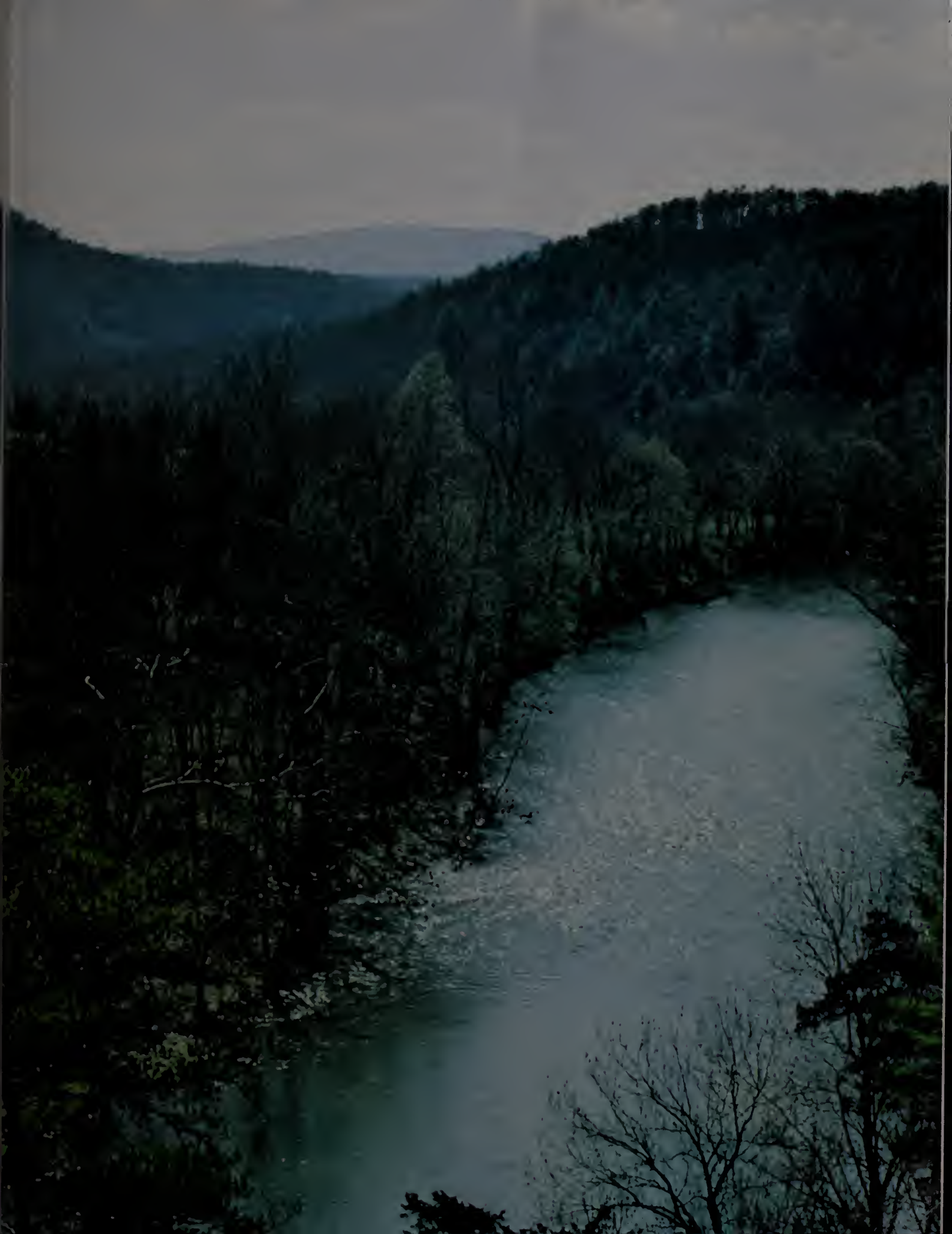
Gusting March winds swept through the valley, but the sun was warm and the water sparkled. The river cut against the shale cliffs at the base of Shenandoah Mountain where miniature glaciers had accumulated from the seepage of springs through the frozen months.

One high shale cliff was raw and barren with little vegetation. We called it the Cliffs of Saturn for the oddly shaped concretions scattered about the cliff face. The round stones ranged up to three feet in diameter, many with ribs around the planet. As the soft shale weathers away, the odd stones protrude more and more until they fall and are washed away.

It was only a few miles down the river to where the Bullpasture River joins the Cowpasture. Though both rivers are trout stream size where they meet, the river then widens considerably, as if already taken with ideas of greater things downstream. Soon the river meets bluffs and cliffs again, funneling its currents into deep holes and narrow, turbulent rapids.

A few old farmhouses, mostly abandoned now, are found along the river. There is an occasional swinging bridge or small powerline crossing overhead. But the river traveler exists in a world of shale cliffs, rocky rapids, and wildlife, largely free of the manmade boundaries of roads and fences.

Great blue herons stand on long



stilt legs along the gravel bars. At the approach of the canoe, they leap into the air and sail above the river with the air and sail above the river with bent necks and dangling legs. In the evening white-tailed deer drink in the shallows and wade the river to the cornfields. On occasion a deer can be seen swimming downriver through deep sections. Chewed twigs and girdled trees mark the beavers haunts and the canoeist seems to always be herding various wild ducks downriver, till the ducks tire of the game and fly over back upstream.

We were greeted by a riotous chorus of red-winged blackbirds at an old farm, one of several places along the river where George Washington National Forest land reaches from the ridgetop to the river banks. After an afternoon's paddling we landed at the cedar and broomsedge fields to find a campsite.

A few waves had landed in my lap and I was glad I had worn my wool longjohns to take the sting out of the icy waters. A pair of wading boots, extending a couple inches above my knees, provided padding when kneeling. High boots could be a hazard if forced to swim in a large river, but on smaller streams they are a welcome addition to cold weather canoeing equipment.

The Bullpasture and the upper reaches of the Cowpasture are stocked with trout, though the Cowpasture is best known for its small mouth bass. I jointed up my packrod and cast a spinner-fly into the slick water at the bottom of one rapids, but fishing was unproductive in the high water. We resorted to a standby supper of dry soup mix and macaroni.

The winds buffeted our nylon tarp through the night, blowing in cool air to remind us of winter's presence. In the morning the water canteen was half frozen but the winds had died. The morning sun pushed winter's chill back into the cool hollows and shaded cliffs. After a leisurely breakfast we loaded and renewed our journey.

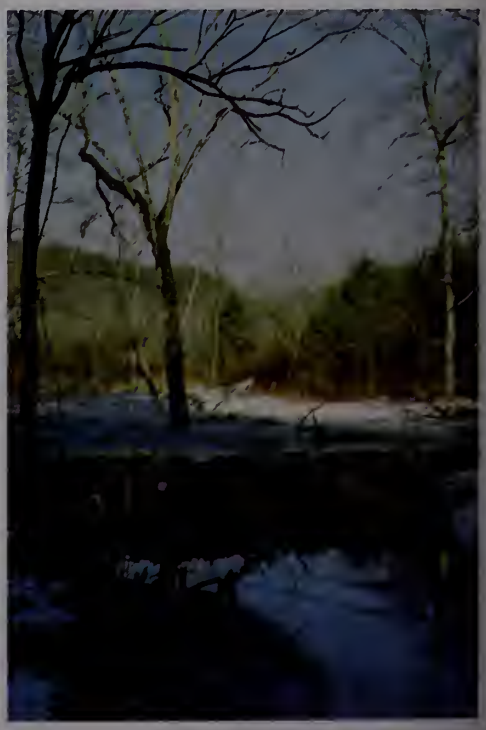
The valley farms are divided by fences and cornfields, dotted here and there with gray-weathered barns and brick farmhouses. The agricultural landscape appears as natural and inherent to the area as the forested mountains, lying ridge behind ridge on each side. Even the names of the rivers seem appropriate. The Calfpasture River flows through the next valley to the east.

But these rivers were named during another time when no fences corraled the wild buffalo and elk that once grazed the valley pastures. For centuries the fertile Appalachian valleys of western Virginia were a prime hunting ground for eastern Indians. By the 1760's the last of the wild buffalo had disappeared with the Indians, replaced with the domesticated livestock of European man. Fortunately the white-tailed deer has proven better able to adapt to a man centered world.

A few mountain hollows and high cliffs are the only areas that remain entirely untouched by civilization. These scattered areas support great, shaggy hemlocks and wind-twisted cedars that have endured for centuries in rocky isolation, aloof from man and his struggle to dominate the land.

After the pastoral valley at Fort Lewis the river cuts into the edge of a range of hills called The Spurs. Rusty fox squirrels raced our canoe along the banks and a solitary kingfisher patroled its fishing posts.

Here rocky cliffs funnel the river into a small gorge area where rapids and deep pools are hidden by steep walls of limestone and shale. From the bowseat I squinted to pick a course through the glare and the rocks. The rapids were not especial-



ly hazardous, but the ice water creates an added incentive to pick the best route and avoid any chance of a spill.

The damper, shaded slopes in the gorge are dominated by dense stands of hemlocks, rhododendrons, and northern white cedars. In the North woods the northern white cedar is most common in the muskegs, but on coming south it forsakes the bogs to inhabit limestone cliffs.

The sunny, exposed shale cliffs are more sparsely cloaked in stunted red cedars and shrub pines. These areas are the shale barrens, a place where desert-like conditions and vegetation prevail in the midst of the well watered Appalachians.

After five hours of steady paddling, enveloped in the river's solitudes, we neared our take-out. We were sunburned and tired, but buoyed by the elation of paddling and testing reflexes after an icebound winter. Though we had found an occasional cabin or trailer along the river, more obtrusive evidence of man was rare. There were none of the riverbank garbage dumps strewn with old refrigerators and the other artifacts of modern life that mar too many rivers.

The flowing waters carried us into the river bends and shale cliffs I have known since childhood. As soon as I learned to swim, I started paddling a wood and canvas Old Town canoe through the deep pools on the river.

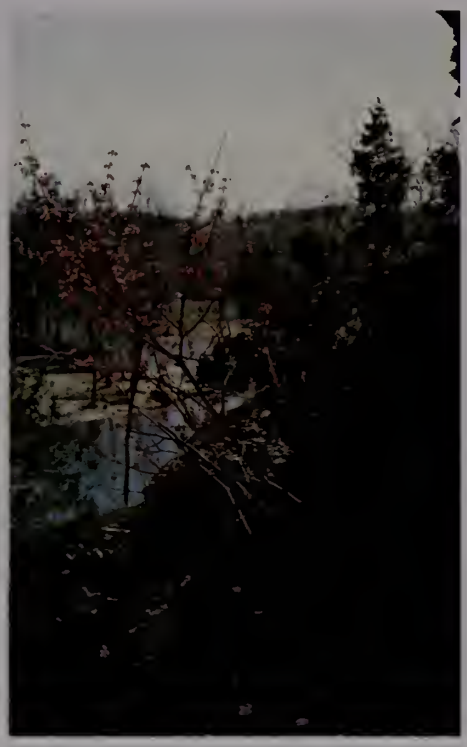
The river's floods brought firewood to the floodplain and once reached as high as the front steps of the log cabin my grandfather built. Growing up there I heard stories of wildcats with human-like screams on the cliff above the cabin and legends of Indian graves lying under the mounds on the river bluff.

The Jackson and the Cowpasture join to form the James River near the small village of Iron Gate. Where they meet, the waters of the Cowpasture are pure and its bottom clearly visible through the green tinted water. Within a mile below the confluence, the dark poisoned waters of the Jackson so overpower the Cowpasture that the canoeist is inclined to avoid the foul smelling brew. Downriver, the James is able to dissipate much of its pollution, but the water is never again as pure as it is in the Cowpasture.

In 1969, a study commission recommended the entire Bullpasture, Cowpasture, and Calfpasture Rivers for preservation under Virginia's Scenic Rivers System. Undammed and unpolluted sections of the Jackson and Back Creek were also recommended for the System.

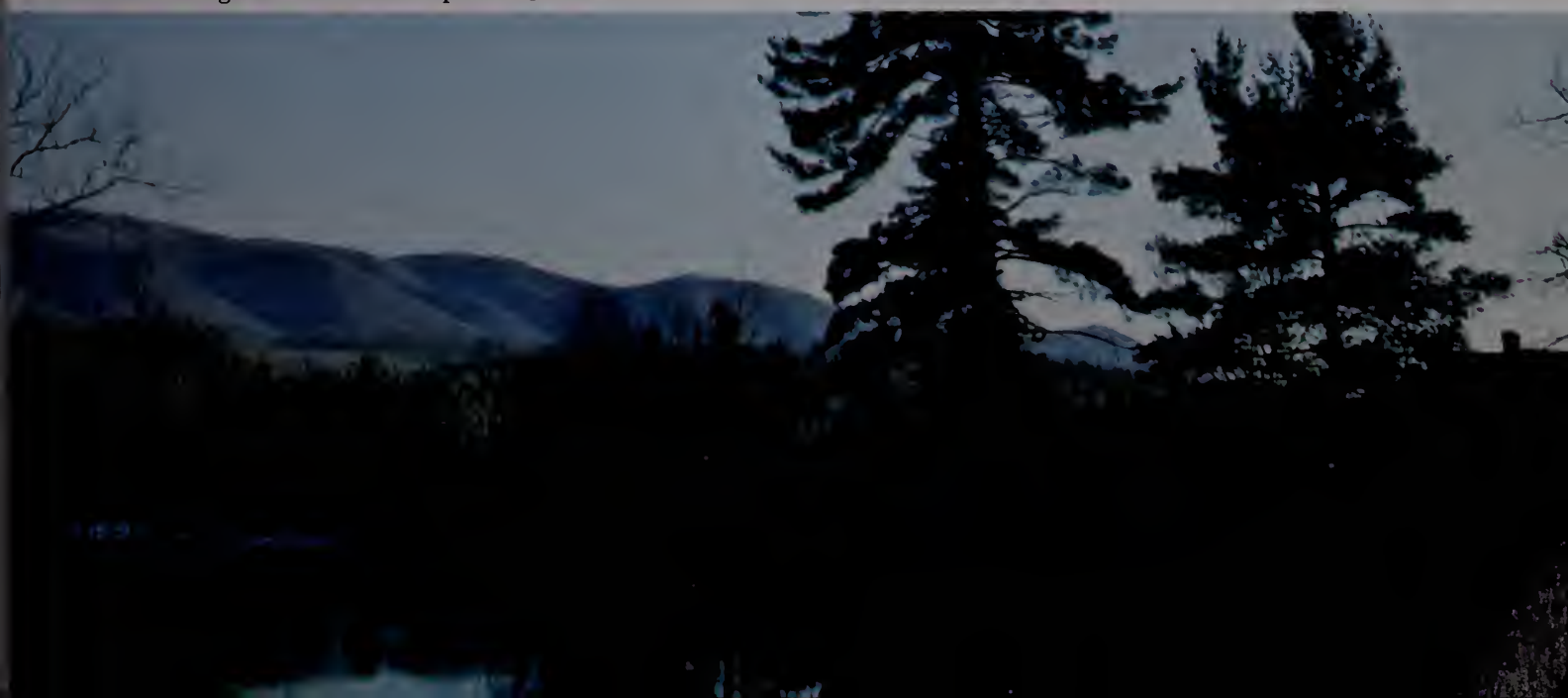
But Virginia's Scenic Rivers System has been slow to gain widespread public support. Government control, no matter what the purpose, is usually viewed with suspicion in these mountains. Often only the immediate threat of a dam has been sufficient to cause owners of riverside land to support Scenic River designation.

However, there are signs of work in progress to preserve the free flowing rivers. Various conservation groups are at work to protect water



quality and wild areas in the surrounding mountains. The Cowpasture River Preservation Association, composed of landowners and local residents, has recently been exploring various ways of protecting the river and its watershed.

Though wild buffalo will never again graze these river valleys, the rocky cliffs still support remnants of the wilderness that once cloaked this land. And in the fading evening light, a herd of Black Angus moving across distant hills can create a fleeting sense of *deja vu*, providing the visitor with a glimpse of a time when all rivers flowed free and pure from the mountains to the sea.



Growing Up Outdoors

BY SANDY COLEMAN

Snow Fun

Illustration by Diane Grant

Matt and Amy watched the tumbling flakes of snow piling up on the dry ground.

"You know, that's going to stick, Amy," Matt said to his younger sister. "The ground is cold enough so maybe we can have some real fun tomorrow. We could go sleigh riding and maybe even build a snowman or an ice house."

"I love snow," Amy said. "I bet we don't even have to go to school tomorrow!"

The next morning, the brother and sister woke up to a quiet, white, snow covered world.

"Everything seems so still," Matt whispered. "There's no footprints or anything in the snow. Nobody's been out there."

"I almost don't want to go out there and mess it up," Amy replied.

As the two sat at the breakfast table, their Mom gave them the news they had been hoping to hear. No school!

"Well, what do you want to do, Matt?" Amy asked as the two were buttoning up their jackets and tying on their scarves.

"Why don't we start with a snowball fight?"

Later the two, very tired and with very red faces, came in for a short while to warm up.

Amy looked up from her steaming mug of hot chocolate. "We could build an ice house. Remember when we did that last winter?"

"Yes, that was lots of fun," Matt agreed. "Still, I really don't feel like doing that. What else can we do?"

"I know of one thing. When it snows, the birds have a hard time finding food because the ground is covered and so are the trees. Why don't we feed them?"

"That sounds like a good idea. But what do we feed them?" Matt asked.

"I've seen Miss Duncan feed them sunflower seeds, but I think that bread is good for them, too."

"Yeah! I bet Mom would let us have some. Let's go ask her." Matt and Amy sped into the kitchen where their mother was busy making lunch.

"Mom, do you have anything that we can feed the birds?" Amy asked. "We were thinking that they might have a hard time finding things to eat with all the snow on the ground."

"Certainly, I think we can find something," their Mom replied. "I know this doesn't sound like much, but here is some bread. Break it up into very small pieces and scatter it on the ground. When I go to the grocery store I will buy you all some sunflower seeds. Your Dad might even build you a bird feeder!" Matt and Amy watched as she took out the plastic bag filled with bread and began to break it into bird-sized pieces. "See, you two can do this."

Later that afternoon, Matt and Amy watched as the hungry birds came and picked up the small pieces of bread and carried them away in their beaks.

"I think this is really a neat idea, Amy. This is probably the best one you've had so far," Matt said generously. "I like thinking that maybe we can help keep the birds from starving. It makes me feel good."

"I like the feeling, too." Amy told her older brother. "It will be even neater when Dad builds us a bird feeder. I read that you can make a special solution with sugar and water and attract hummingbirds in the spring. Wouldn't that be neat?"

Matt nodded his head enthusiastically. "We have to wait a long time to do that, though. What can we do now?"

"We can build a snowman! We'll get some buttons and carrots and a broomstick and build a snowman just like Frosty! That's really what snow is for, you know," Amy said knowledgeably.

Matt could do nothing but agree.

The Lowly Lichen?

BY TONY DECKER

When I was taking freshman botany at forestry college in the thirties, I had a laboratory instructor who was doing research on lichens for an advanced degree. Asked "Why lichens?" he said they were a comparatively neglected group of plants, and he felt he could become an authority on them while still a young man. He did become an authority and contributed to science in that field. However, I do not think the average outdoorsman is any more informed on lichens now than then.

Lichens are all around us, but moss gets most of the credit and is often mentioned in verse and prose. One of the most important of all lichens even has had the bad luck to be misnamed a moss — reindeer moss.

Unique in the plant kingdom, each lichen plant consists of a fungus and an alga, living together for mutual benefit in a partnership that is called symbiosis. The fungus, being without the means of making its own food, depends on the algal cells and their chlorophyll for a living. In return the fungus protects the more delicate algal cells, and supplies a reserve of moisture which the algal cells can draw upon in the food-manufacturing process.

Lichens are pioneer plants, sustaining themselves and reproducing from the polar regions to the hottest equatorial deserts. They grow on bare rock, barren soil, and other exposed surfaces from the highest mountains to the seashore. Most lichens are not able to compete with higher plants, nor do they tolerate disturbance by agriculture or other repetitive activities of man. This being the case, the best place to look for lichens is in a stable environment.

Virginia's least disturbed areas are her higher mountains and denser swamps. Lichens are especially profuse on Mount Rogers and Whitetop, the state's highest peaks, with their stands of virgin timber where even the ground has not been burned in centuries. But don't feel you have to go to Mount Rogers or the Dismal Swamp to see lichens. Any rock or tree trunk in your neighborhood may be host to one or more species out of the several hundred found in Virginia.

Lichens reproduce separately as fungi or algae, or in combinations. The fungus portion produces spores, as normal fungi do. These are produced in special bodies called apothecia. In non-technical terms these correspond roughly with the flowers of higher plants, but there is no common word for them. In many lichens these apothecia are formed at the margin or top of the lichen body, for which thallus is the proper term. Many apothecia are distinctively colored and formed, as we shall see later. The alga reproduces by cell division. It would seem a tremendous risk for a fungal spore, on being wind blown to a new location, to find an alga of the right kind with which to combine. Apparently such algal cells are plentiful, because new surfaces are quickly colonized.

The lichen also reproduces by a process called frag-

mentation, in which the surface of the thallus may form pustules or become powdery, forming fragments called soredia, which already contain the proper fungal and algal cells necessary to start a new plant on arrival at a suitable site. The fungus gives the plant thallus its typical form. The algae provide the green color. In some cases the color of the fungus masks the green algae and the thallus may be brown, yellow, gray, etc., but the usual color is a greenish-gray.

A look at an often ignored friend of man.

Lichens are best described by placing them in three groups — stalked, leafy, and crust. These terms refer to the general appearance, but relationships do not necessarily remain with the groups.

The stalked lichens include the reindeer "moss" of the arctic. In Virginia the form is represented by the woodland reindeer moss, which is a pure gray-green and grows in "beds" in shady woods. There are some examples in Hungry Mother State Park near Marion, an area untouched by fire in over 30 years. Another stalked lichen is the goblet lichen, whose tiny cups rise about ¼-inch above the thallus. This is a very common lichen in our state. The more slender powderhorn lichen has its larger end down, with the faintly colored apothecia at the top or "pouring" end of the horn.

The beard or pendent lichens belong in the stalked group also. These generally grow from tree twigs or branches, and are most abundant in cool, wet areas like the spruce and fir forests of Mount Rogers. They look much like the "Spanish moss" of the deep south, except they are much finer.

The flowering lichen produces apothecia which are broad, with fringed edges, and have a flower-like appearance. Usually they occur in treetops and are easily missed. The leafy lichens are also abundant and conspicuous. Like the stalked kind, many have striking names as a result of their appearance. The thalli tend to be broad and are often centrally fixed to the host rock or tree. Where lichens grow on tree bark no damage is done for the plant does not penetrate the bark or draw any sustenance from it.

Especially abundant in undisturbed areas are the rock stripes. Any hiker on the Appalachian Trail will pass many fine examples of these. Smooth rock tripe may grow to 12 inches in diameter. On the underside it is velvety black, as against greenish-yellow on the exposed surface. A companion is the blistered rock tripe. As the name implies, this has a blistered-looking upper surface. The gray-white reverse has a sunken surface everywhere there is a blister on the top. The rock tripes have been used as food by starving explorers. The abundant rock tripes are soil builders and collectors. Debris of needles, twigs and leaves collect under them, allowing mosses, ferns, and higher plants to take over — to the eventual disadvantage of the tripes.

A leafy form often found on tree bark is the lung lichen. Named for the pattern of depressions on the thallus that resembles those on a lung, this lichen was a favorite, though futile, frontier remedy for lung ailments. It is a host to a yeast which was used in earlier times for leavening in bread making. The lung lichen is common in our area.

One of the few lichens that can compete with moss and higher plants is the studded leather lichen. The thallus has scattered gray dots on the greenish-gray surface. On becoming wet there is a quick change, the dots becoming black, and the thallus a bright green. Brown apothecia form on the fringes of the thallus on finger-like lobes. This plant can be found along the Lake Trail in Hungry Mother Park.

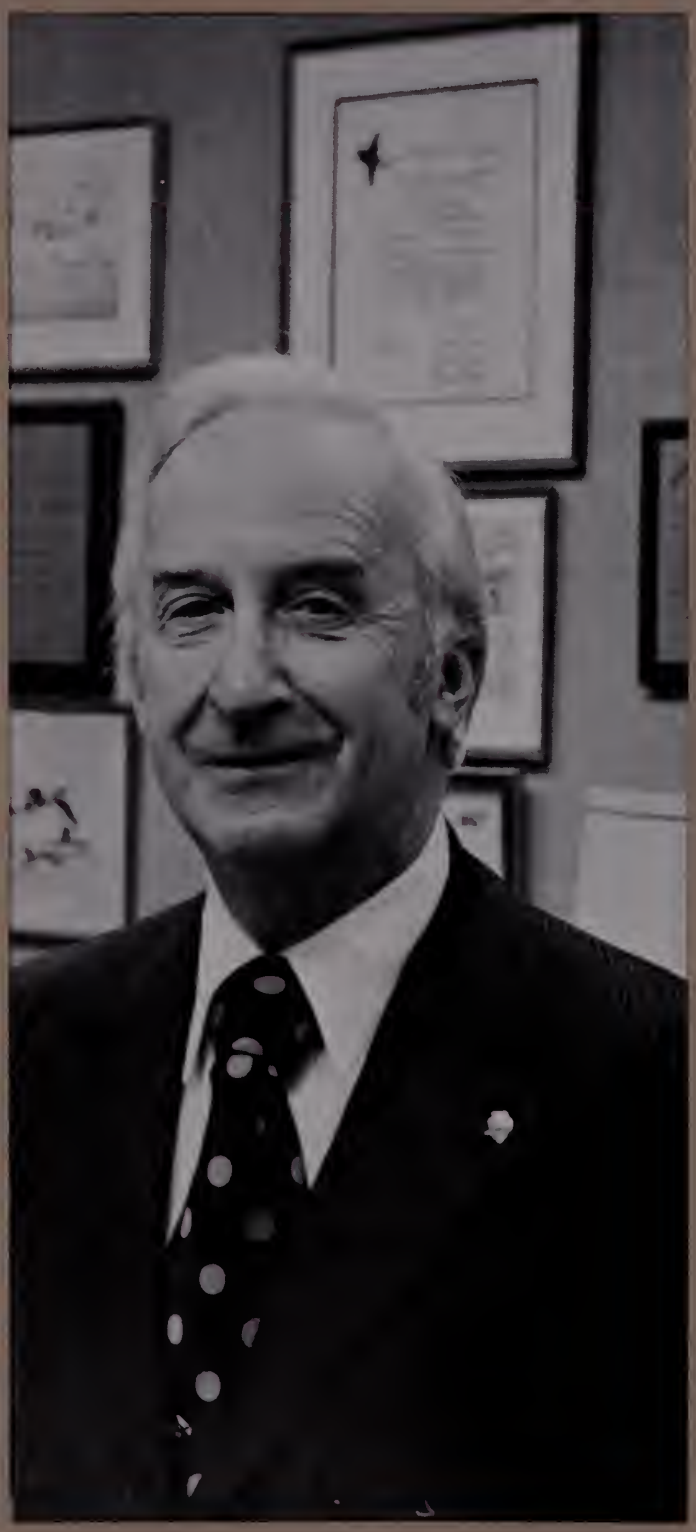
Many leafy lichens grow on bark or rocks, the thalli adhering very closely. Two such are the gray star and the boulder lichen. Apothecia tend to form as cups in the center of the plant as the thalli spread outward. The handsome appearance of many rocks and older tree trunks is usual to these forms.

Possibly the best known of our lichens is the red crust lichen, often called "British Soldiers." Popular in terraria, the bright red apothecia form at the tops of stalks about ½-inch high. Growing thickly on decaying logs they may give the impression of a tiny forest with red fruit.

Crust lichens are very abundant, but often the least conspicuous of the three groups, although there are exceptions. They may look like a stain or smear on a rock, although many lend distinctive patterns. Crust lichens can withstand the most severe extremes of climate. There are examples on the Whitetop Bald that successfully cope with temperatures far below zero, combined with winds of near hurricane force. Crust lichens can grow only in brief favorable periods when moisture and temperature are right. They must be able to endure the often long periods between. They are usually the first plants to begin covering the raw rocks of new road banks. In fact, without lichens newly exposed rocks might continue to look raw and unsightly for many decades.

The lichens of Virginia add color and design where none would otherwise be. As pioneer plants they are second to none. Much pleasure awaits anyone interested in the outdoors who will take the time for a closer look at lichens.

CHESTER PHELPS



On Wednesday, December 27, 1978, Chester F. Phelps terminated his forty-year service with the Commission of Game and Inland Fisheries. His retirement brings to a close a career during which the name Chester Phelps became synonymous with scientific wildlife management throughout the North American Continent.

Phelps is a graduate of North Carolina State University where he received a B.S. in Forestry after having attended Pennsylvania State Forest School and Pennsylvania State University. Later he was awarded a M.S. Degree in Game Management from Virginia Polytechnic Institute (now VPI & SU). It was during that period that he first came in contact with the Game Commission in 1937 while working on a research fellowship. In 1939 he joined the Commission of Game and Inland Fisheries as its first wildlife biologist.

Known and recognized internationally as an expert in both wildlife management and administration, Phelps is a charter member of the Wildlife Society and is past president of the Society's Southeastern Section. He is also past president of the Southeastern Association of Fish and Wildlife Agencies, and the Commonwealth Chapter of the Virginia Division of the Izaak Walton League of America. He served on the Executive Committee of the Fontana Conservation Roundup, the National Association of State Boating Law Administrators, the Virginia Commission of Outdoor Recreation and the Atlantic Waterfowl Council. In 1966 Phelps was named Conservationist of The Year by the Virginia Wildlife Federation and he is the recipient of the Charles Banks Belt Award, the Herbert C. Bonner Award, and the Clarence W. Watson Award of the Southeastern Association for distinguished service in wildlife administration. From 1970-1971 he served as president of the prestigious International Association of Fish and Wildlife Agencies and since 1973 has been Secretary-Treasurer of that organization which claims membership in each of the 50 United States, Canada, Puerto Rico, and Mexico.

According to Phelps, he plans to continue on as Secretary-Treasurer with the International and remain active in many of the endeavors with which he has long been associated. As far as any long range plans, there are none at the moment, with one exception. Early in 1979 he and his wife B. Ann are heading for Europe. Upon their return, there is no telling what kind of project or adventures that these two people will tackle next. One thing is certain, however . . . . they will be missed.

FISH ON WHEELS

BY PRICE SMITH & ED STEINKOENIG

Attracting fish with old car tires and other unlikely materials has become an interesting and effective management tool in some Virginia lakes. During the summer of 1977, nineteen fish attractors (averaging three per lake) were constructed at Lakes Albemarle, Brittle, Burke, Nelson, Orange, and Shenandoah, public fishing lakes owned and managed by the Commission of Game and Inland Fisheries. Placing new attractors at each lake emphasizes a continuing effort by the Commission's Fish Division to manage the State's public waters in order to provide maximum enjoyment and success for anglers.

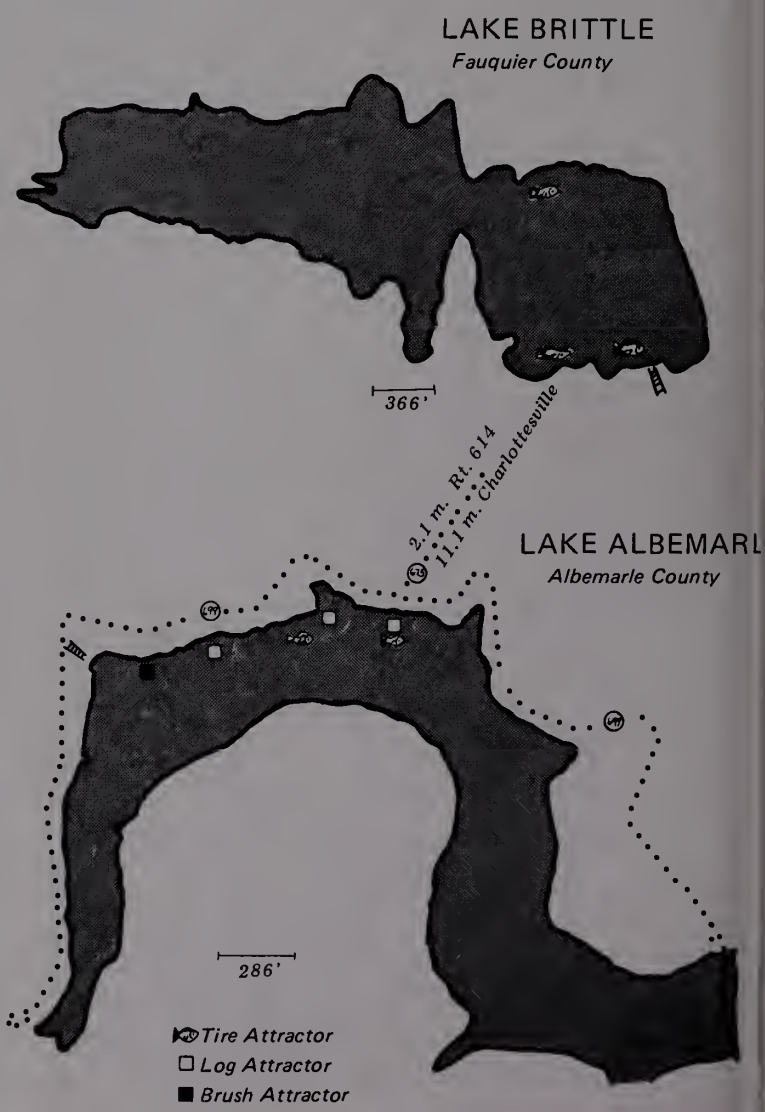
The number of anglers in the United States is growing phenomenally and it has been estimated that by 1985 forty-seven million anglers will harvest well over one billion pounds of fish from the nation's fresh waters. Virginia is no exception — the number of anglers will harvest well over one billion pounds of fish from the nation's fresh waters. and the number of anglers and their harvest is increasing annually. Meeting future demands and properly managing Virginia's fish resources is the main goal of fishery biologists.

Justification for constructing fish attractors as a management tool begins with understanding the unique problems presented by small lakes. All six lakes are shallow and potentially highly productive. The standing crop of each lake should average several hundred pounds of fish per acre and angling success should be excellent. The six lakes approach these expectations, but have one flaw. Unlike Commission owned lakes being constructed now, these older lakes were built by clearing all timber, grading, and excavating the lake bottoms. Such construction practices left the lake bottoms with few natural obstructions that act as substrate for fish food, spawning sites, and most importantly, cover and protection. Experienced anglers know that the best fishing often is found near submerged tree stumps, brush piles, ledges and boulders. Fishing a lake with a highly diverse habitat along its shores and within its quiet depths will make quite a difference.

Fish attractors can be as diverse as the imaginations creating them. Different materials used in attractor construction include brush, cement blocks, stone rubble, clay and PVC pipe, stakes, old car bodies, and discarded automobile tires. These materials, used separately or in combination, create mini-habitats that provide shelter and other essentials for fish production.

The decision to use tires for fish attractors depends upon several criteria. When choosing the type of attractor for each lake, effectiveness, cost, and durability are of the highest priority. Previous research has indicated that largemouth bass and panfish utilize tire attractors throughout the year. They spawn in, feed on, and seek shelter among the tires. Bullheads and catfish prefer the attractors during spawning season as the numerous cavities and recesses apparently lure these fish just like undercut banks or hollow tree stumps do. Cost of construction is very low because materials can be obtained free from the nearest service station or tire distributor and, additionally, the unsightliness of old tires is not of concern if they are placed deep enough under water. Tires are also easy to transport. For once the ugly refuse of modern civilization can be utilized to benefit nature. Tires do seem to lose some of their attractiveness to fish after a few years, however.

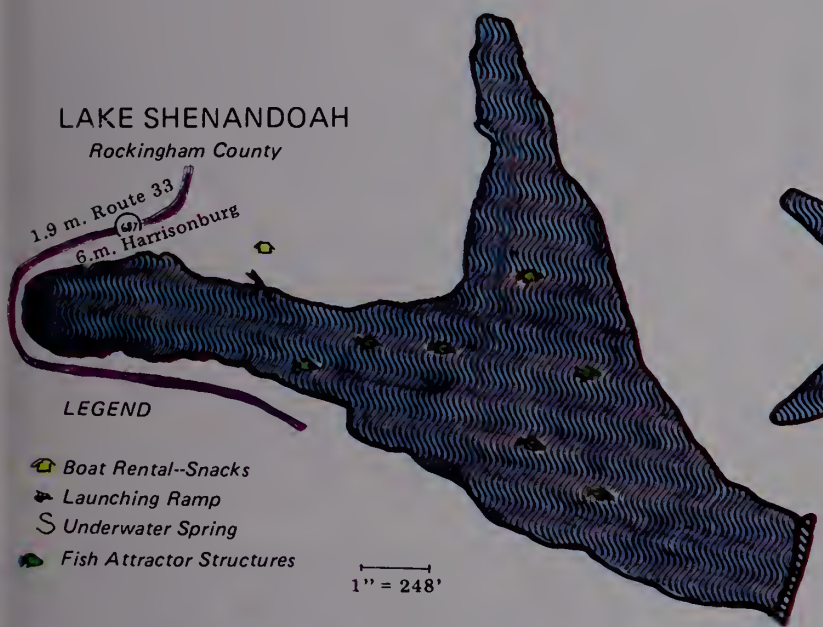
A string of five tires is tied together, with worn out tread of one tire pressed tightly against the tread

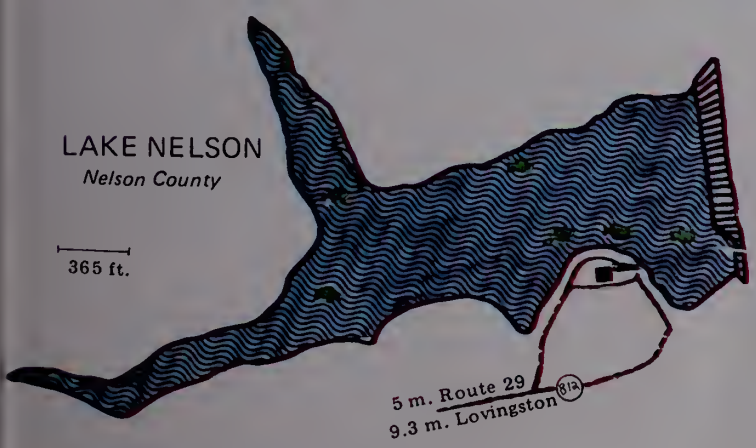


of the next. Ten or twelve of these strings are then "hung" on a pole that has been driven several feet vertically into the lake bottom. The tire strings radiate outward from the pipe like the radiating spokes of a wheel. The completed structure has the general shape of an upside down tree made of tires. On the water's surface all that is visible is two or three feet of pipe, a beacon indicating a fishing hot spot. Shelters should not be placed in main travel lanes so as to hinder navigation. To place fish shelters in public waters, permission of the managing agency is required.

After only a short time anglers have begun to enjoy the new attractors. Increasing the catch per angler is the goal of the Virginia Commission of Game and Inland Fisheries. By helping nature, the Commission will be helping the angler to have a pleasant experience while visiting Virginia's scenic lakes.

(In future issues we plan to have articles on construction and effectiveness of other types of fish attractors.)



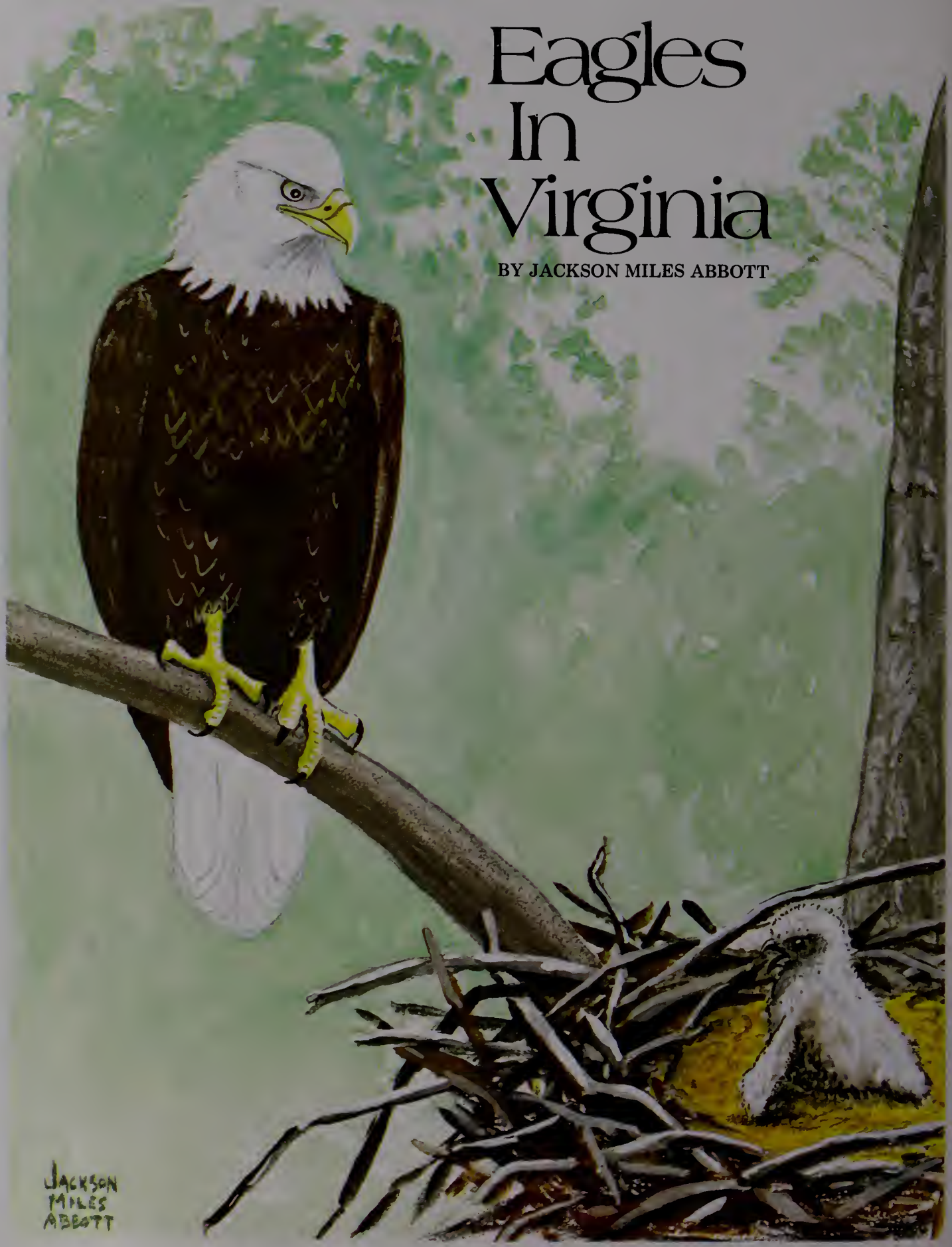


Rural America
A Photo Essay By Paul Kugler

Country life is living at its primitive best. Work brings gain. The quiet companionship of a family around a fire. The brisk chill of an early fall morning and the smoky dusk of a summer's eve. Frustrations are many, but sweet rewards are even more plentiful.

Eagles In Virginia

BY JACKSON MILES ABBOTT



An expert looks at the status of this majestic bird.

During the spring of 1978 the Virginia nesting population of bald eagles was censused for the 22nd year in succession. For the first 20 years this census was conducted by a handful of volunteers representing the Audubon Naturalist Society and the Virginia Society of Ornithology. Observations were received from the general public and from State Fish and Game and Forestry personnel. The US Army flew observers in helicopters during the period 1962-1966. In 1967 the US Fish and Wildlife Service joined the effort with planes and pilots and has been contributing this essential aid ever since. The ANS picked up the tab for the occasional rental of private planes when government aircraft or pilots were not available.

In January 1977, the Chesapeake Region Eagle Group was established with representatives of the USF&WS, the Fish & Game and Natural Resources agencies of the states of Delaware, Maryland and Virginia, the National Wildlife Federation, the ANS, the Maryland Ornithological Society and the VSO.

The objectives of CREG are:

1. to accurately record the location, description and history of each bald eagle's nest;
2. to identify predator and human disturbance problems at each nest;
3. to collect abandoned eggs and other nest debris for analysis;
4. to band as many young eaglets as possible;
5. to locate and regularly census primary eagle feeding and roosting areas;
6. to identify property owners of nest, feeding and roost sites and obtain cooperative owner/state/federal agreements for their protections;
7. to conduct a public relation/information program to obtain cooperation of the general public, and,
8. to produce an annual report.

As lead agency and source of funds for the recovery of all endangered species under the 1973 Endangered Species Act, the USF&WS appointed a Chesapeake Bay Bald Eagle Recovery Team in 1977. A recovery team is appointed by the USF&WS to guide and monitor state (and other) efforts to assist in the protection and recovery of an endangered species. In this case CBBERT is monitoring the efforts of CREG to meet the initial objectives cited above and is drafting a recovery plan which will point the way to protecting and preserving eagle nesting, feeding and roosting habitat as well as the birds themselves.

The results of our first aerial census of bald eagle nests was reported in *Virginia Wildlife* Magazine for July 1962. Since that year, which incidentally was the poorest year for eagle nest success in the history of this survey, we have added 16 years of data which shows some disturbing and some hopeful trends. Since all but a few pairs of Virginia bald eagles nest along or near the river shore, the following discussion of trends will be by major river systems.

The Potomac River. Historically, the bald eagle has been known to nest as far up the Potomac River as the Short Hills Ridge in Loudon County. This site was last known to be active in 1961. The woods where this pair nested was lumbered off in 1961/62. Two or three other pairs of bald eagles nested on wooded islands in the Potomac between Brunswick and the District of Columbia line up to the late 1950's, then disappeared (these nests were actually in Maryland which "owns" the entire Potomac River). This island habitat is still virtually unspoiled and would be acceptable to eagles if they ever returned. In eastern Fairfax County there were at least 7 pairs of bald eagles nesting through the 1940's. After WWII development mushroomed in this area and eagle habitat began disappearing. In the 1950's there were only 4 pairs left and by the late 1960's, only one pair remained. This pair is still in residence on Mason's Neck where a National Wildlife Refuge has been established to help save the habitat and the eagles. This is also the locale where in 1936 a local resident showed ornithologist W. Bryant Tyrrell (who was conducting the first survey of bald eagles in the Chesapeake region for the National Audubon Society) a big dead chestnut tree from which "more than 50 eagles" had been shot by hunters over the years; there was one under the tree at the time!

In Prince William County there were 5 pairs of bald eagles up to the 1950's but housing developement and logging activities destroyed much suitable eagle nesting habitat and by the mid 1960's there were no nesting pairs of eagles left. In Stafford County it was much the same; at least 8 pairs of eagles nested between Quantico Marine Corps Base and Potomac Creek into the 1950's. Then lumbering and housing developments destroyed half of the existing nest sites and the pairs themselves gradually died off until only three were left by 1975. In 1976 only 2 pairs were left in Stafford County and by 1978 only one pair remained and it raised one eaglet. This was the first eaglet raised in Stafford County since 1971 and only the second since 1962 when a pair raised one young.

The picture brightens a bit when we look at King George's County where at least 10 pairs of bald eagles

"There are signs that eagles are returning to the Chesapeake Bay region."

nested into the 1950's. Lumbering in the 1960's disturbed 4 nest sites but not completely since the trees were not clear cut; a few mature trees were left standing and the eagles remained in 3 of the sites and abandoned one. By 1970 we were down to 6 pairs in KGC but in 1975 a pair returned to the logged over site they abandoned earlier. In 1978 we had seven nesting pairs, only one of which produced young. The habitat will still support 10 pairs but the birds have not recovered from the die-off caused by chemical pesticides in the 1950's and 1960's. However, there are signs that the eagle is recovering in the Chesapeake Bay region and a few are returning to old nest sites from which they have been absent for years.

In Westmoreland County where we had 8 nesting pairs up to the early 1960's, we still have 7 pairs, having lost one to development in the Colonial Beach area. Three of these seven pairs produced young in 1978.

On the Potomac River side of Northumberland County we have been able to locate only 2 nesting pairs of bald eagles over the years, although there is enough habitat for 608 pairs. Much of the county is in pine woods and sections are logged off every year in the winter and early spring which is the eagles' nesting season; this is probably enough disturbance to keep the eagles away. Thus, on the Virginia side of the Potomac we had at least 40 pairs of nesting bald eagles as recently as the 1940's. By the late 1960's we had lost 24 pairs, then regained one in 1975 to give us a 1978 population along Virginia's Potomac shores of 17 pairs.

The **Rappahannock River.** The bald eagle nesting population on the Rappahannock has also been reduced but less severely than along the Potomac. As recently as the late 1950's we had 20 pairs south of Fredericksburg (none are known to nest north of that city) but by the early 1970's we were down to 12 pairs. Interestingly enough, this loss is not due to habitat destruction; all of the 8 abandoned pair nest sites are still as suitable for eagles as they were previously. The loss is believed to be due to ingestion of chemical pollutants by the eagles during the 1950's and 1960's and their subsequent demise.

Along the **Piankatank River** we had two pairs of nesting eagles as recently as the early 1970's but have lost both to unknown causes; the habitat is still the same. They could have been the victims of illegal shooting which continues to be a problem in the Chesapeake Bay region despite the passage of laws to protect the bald eagle and other raptors.

On the **York River** and its tributaries, the Mattaponi and the Pamunkey, there were 19 nesting pairs of bald eagles as recently as the early 1960's. In 1978 eleven pairs were left, only one of which hatched any young. The habitat is still adequate for 19 pairs but the eagles have not recovered from the effects of pesticide poisoning.

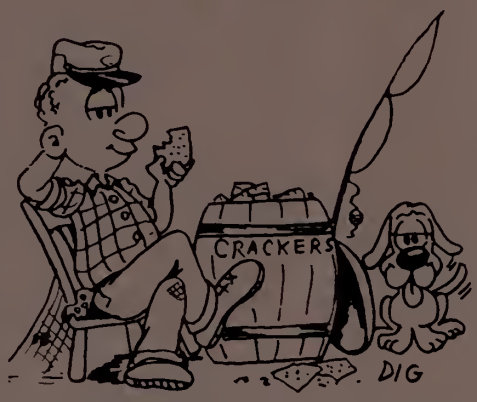
The **James River** has the saddest history of all Virginia rivers as far as its nesting bald eagle population is concerned. Up to the early 1950's the population was estimated at about 25 pairs. By 1964 there were only 13 pairs and the number plummeted to four pairs in 1968, three in 1970, one in 1974 and none since. Most of the habitat is still there but the river is "dead" for eagles. They are predominantly fish eaters and the fish in the James have been found to harbor high levels of Kepone, a highly toxic chemical insecticide which was manufactured in a plant on the James near Hopewell since the 1940's. Even though manufacture of this pesticide at the Hopewell plant was stopped in 1975, residues in the river remain to contaminate all of its living creatures for years to come. Two abandoned bald eagles' eggs collected for analysis from a nest on the York River (a short eagle flight from the James River) in 1977 were each found to contain over 5 parts per million (wet weight) of Kepone, the highest counts of Kepone yet found in any fish-eating bird's egg. One dead eagle was analyzed and was found to have 100ppm of Kepone. This is hundreds of times the amount required to condemn seafood products for human consumption.

About eight pairs of bald eagles nested into the late 1950's at various sites in the SE corner of Virginia, including the city of Norfolk, Seashore State Park, the Dismal Swamp, Stumpy Lake, North Landing River and Back Bay. There are no nesting eagles in these areas now although the habitat is essentially the same as it was then. The Virginia peninsula (Accomac and Northampton Counties) had possibly four nesting pairs up to the 1950's. We have been able to locate only one nesting pair (in northern Accomac Co.) since the early 1960's. In 1978 we found an inactive bald eagle's nest in a new (to us) location in NE Accomac Co. We hope it will be active in 1979. The shores of the larger lakes and reservoirs of Virginia west of the Fall line have been carefully searched in the past several years but no eagle nests have been found. Occasional adult bald eagles are seen at some of these water bodies but so far no nests. The reader is urged to keep an eye open when visiting these places and report any sightings of adult eagles and apparent eagle nests to the writer.

In summary, Virginia now has about 40 nesting pairs of bald eagles as compared with at least 112 pairs as recently as 40 years ago. It seems that the bottom was reached in the early to mid 1960's and that recovery is slowly taking place.

It Appears To Me

By Curly



. . . . A PERSON OUGHT TO HAVE ONE

I reckon that there is one word in the English language that sets me to dreaming more than somewhat and that word is *wilderness.* No doubt quite a few of you feel the same way. This brings to me the point that the Bureau of Land Management has published a handbook which describes the guidelines for the identification of potential wilderness areas. Additionally it describes in detail participation by the public in the wilderness inventory process. "Wilderness Inventory Handbook" is free for the asking from: Bureau of Land Management, Utah State Office, Room 1500, University Club Building, 136 East South Temple, Salt Lake City, Utah 84111.

For those of you that are interested in, or having dealings with, the Tennessee Valley Authority, it may be helpful for you to know that there is a toll-free telephone number that you can call to get information about the organization. Some time back, those good folks down there set up the service in an effort to give the public the ability to obtain answers to questions about TVA and to offer comments and suggestions on the agency programs. The telephones are toll-free to consumers in Virginia, Tennessee, Mississippi, Georgia, Alabama, Kentucky, and North Carolina. In Tennessee the number is 1-800/362-9250 and for all the other states listed above, use phone number 1-800/251-9242. If you happen to live in the city of Knoxville, Tenn. just call locally 632-4100. Incidentally it may also interest you readers to learn that *Virginia Wildlife* has nearly 500 subscribers in North Carolina and about 100 each in Tennessee and Georgia.

With the current and obviously continuing interest in rivers here in the Old Dominion, it would seem to me that you and the members of whatever organizations you belong to would be interested in a free booklet on the subject. That being the case, drop a line to: Heritage Conservation and Recreation Service, 600 Arch Street, Room 9310, Philadelphia, Penn. 19106 and request a copy of "Wild and Scenic Rivers . . . How To Work With The System."

. . . . FOR YOUR BOOK SHELF

Now that you have your Christmas tree out of the house and the rush of the holidays is a thing of the past (for a while anyhow) it is a good time to start thinking about spring planting. Recently I ran across what seems to be a jim dandy little paper-backed 26 pager called "The Concerned Gardener." It is published by: Concern Incorporated at 2233 Wisconsin Avenue, N.W., Washington, D.C. 20007. These are folks that formed a non-profit tax-exempt organization in order to promote public awareness of environmental issues and to recommend appropriate citizen action. (They answer about 15,000 environmental questions each year.) Anyhow, they whipped up "The Concerned Gardener," among other things, and in it you can find material about Planting for Pest Control, Planting to Reduce Energy Needs, Grading and Planting to Reduce Noise, and just a whole bunch of really useful information . . . . and it only cost $2.00. Do yourself a favor and order one today.

Next to a catalogue, I would guess that one of the most popular publications that ever came down the pike would be an Almanac. Well, sir and madame, right close to us here in the Commonwealth an outfit with the colorful name, Crabapple Press, in Meadville, Pennsylvania has printed "Poor Joe's Virginia Almanack 1979." The first page of the paperback gives you a delightful idea of what is available in the 96 pages that follow. Here is a sample . . . Almanack and Ephemeris of the Motions of the SUN and MOON, the TRUE Places and Aspects of the Planets and Judgments on the Weather for the Third Year after Bissextile, 1979. . . . also containing (just to mention a few) Fishing and Hunting Schedules, and Election Calendar. . .Preparation of Victuals, information on the Cultivation of Flowers and Herbs and other Entertaining and Diverting Material. The publishers claim that it is, "Fitted for the Latitude of Forty Degrees North and the Greenwich Meridian but may, without sizeable error, serve All the State of Virginia." Folks, for a buck and a quarter, you can't go wrong. Order it from: Crabapple Press, 300 North Street, Meadville, Penn. 16335.

. . . . AND THEN

"Our democratic machinery may be old and worn, and as people say of temporary machine jobs, held together with haywire here and there. We know that it is not perfect. But we also know that it offers a fuller, freer, happier life to our people than any totalitarian nation has ever offered, and it is worth preserving." The Bank of Canada Monthly Letter.

SALTMARSH ECOLOGY,

Part II

Fish of the Saltmarsh

BY CURTIS J. BADGER

Nearly every fish available to anglers in Virginia's coastal waters is dependent on the saltmarsh for at least part of its life.

The food chain of most saltwater fish begins in the shallow, productive tidal waters of the wetlands, where minnows feed on small animals such as mosquito larvae, which in turn feed on the detritus mixture of bacteria and decaying Spartina grass. Many different kinds of small fish live in the saltwater estuaries. Most of them are lumped together in an ambiguous minnow terminology.

Actually, there are many kinds of minnows. The mummichog is common all along the east coast. Killifish and sheepshead minnows are plentiful from Cape Cod southward. Top minnows are found from New Jersey and southward. All are common in Virginia's saltwater estuaries.

These small minnows might look insignificant, but they play an important role in the life of the saltmarsh. As anyone who has ever fished for flounder will attest, minnows are an important food source for larger fish a step up the food chain. Flounders, and many other saltwater fish as well, dine voraciously on killies, mummichogs, and the like. The minnows are also dinner time targets for many of the birds that live in the saltmarsh.

Several species of fish, the mummichog for example, are anadramous. They live part of their lives in freshwater and part in the saline environments of the marshes and sea. Striped bass, shad, and alewives spend more of their lives in the sea, but they migrate through the estuaries and up rivers to find freshwater in which to spawn. After spawning, the adults immediately return to the saltwater, but the young remain behind to mature, first in the freshwater, then in the saltwater estuaries.

A tremendous variety of fish use Virginia's saltwater estuaries, providing multi-million dollar industries in commercial and recreational fishing. One of the most popular of the early season fish is the flounder. Flounder are flat, rather homely fish, which are unique in that the adults have both eyes on the same side of their bodies. They are bottom dwellers, and the brown upper side blends in well with the bottom, camouflaging the fish as it waits for some unsuspecting prey to come along.

Flounders spend the winter offshore, but migrate into the estuaries in early April as the water temperature climbs. Flounders, bluefish, spot, and croakers make their annual inshore migrations to take advantage of the productive food source of the wetlands.

Weakfish, locally called grey trout, also migrate into the warmer and more productive inshore waters during the spring. Weakfish travel north and south along the coast for considerable distances, turning westward into the estuaries in the spring to find a productive and protected area in which to spawn.

While weakfish migrate from the sea to the estuaries to spawn, other fish spawn in the open waters of the sea, but their young come to the shallow bays of the wetlands to mature. This group includes mullet, menhaden, and shrimp.

The estuary plays an important role in the life cycles of nearly every commercially valuable fish caught in the United States. Only tuna, haddock, yellow tail flounder, and ocean perch, among the leading commercial species, are not associated with the wetlands.

Scientists estimate that the wetlands are about ten times as productive as the open waters of the ocean. Small wonder scientists and laymen alike are concerned with the deterioration of wetlands along the coast.

The wetlands are not only an important food source in a time of escalating population growth, but they are the natural basis for an important part of the economies of coastal areas.

Virginia's commercial catch during the 1976 fishing season topped $43 million in dockside value. Despite the ominous shadow of Kepone, the market value of Virginia's seafood is higher than it has ever been. The Commonwealth ranks fourth in pounds caught and tenth in value for commercial fishing in the United States.

Virginia accounts for nearly 30 percent of the entire U. S. catch of alewives, more than 40 percent of the bluefish catch, 54 percent of the menhaden catch, 18 percent of all croaker caught, 14 percent of the flounder catch, and nearly 20 percent of the sea trout catch.

Recreational fishing also provides a healthy chunk of cash for coastal areas. Fishermen collectively spend millions of dollars a year on boats and motors, fishing gear, clothes, and travel expenses in pursuit of Virginia's saltwater fish. Commercial and recreational fishing together probably circulate something like $100 million a year, and all the fish involved in this

Photo by Mel White

Spartina grass is an integral part of the salt marsh food chain.

industry are dependent on the estuaries and wetlands.

Impressive statistics, yes. But the wetlands resource is fragile and misuse can make production figures plummet. Since 1959 oyster production in Virginia waters has declined by 75 percent. Some of the reasons are natural, tropical storm Agnes and a mysterious disease called MSX for example, others are manmade. Over-chlorination of shellfish growing areas by sewage treatment plants has damaged valuable seed oyster beds, and many productive fishing grounds have been condemned because human and animal wastes have made fish and shellfish unfit for consumption.

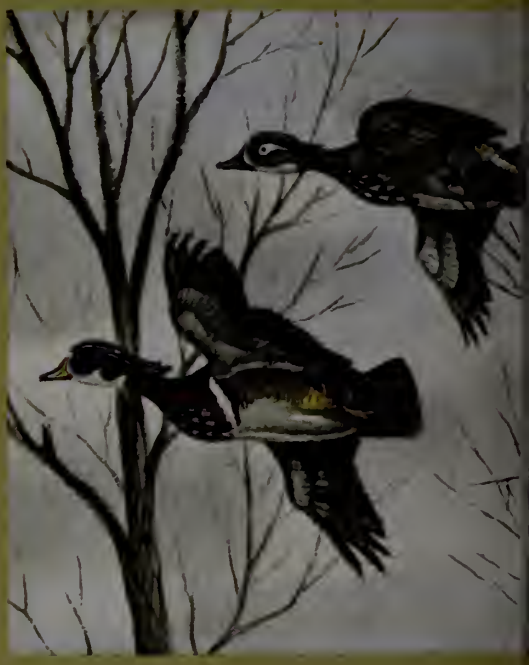
The blue crab catch, which has averaged between 40 and 50 million pounds a year, is down to 25 million pounds. Severe winters have taken their toll, but so have other factors introduced by man, such as excessive herbicide runoffs which scientists believe have killed much of the bottom vegetation in the Chesapeake Bay, wiping out a protective habitat for young blue crabs.

This makes a pretty good argument for wetlands preservation. Filling marshes and building vacation homes might sound like tempting economic ventures to many communities, but when the last bit of Spartina grass is covered and when the last house is sold, the cash flow will begin to trickle. Wetlands offer an investment based on continuity. With minimal care, they will pump millions of dollars into local economies, they will feed millions of Americans, and they will create thousands of jobs. And they will do it year after year, generation after generation.

Continued on page 28

THE ART OF KATHRYN WALTERS RICHIE

BY SANDY COLEMAN



Kathryn Walters Richie says she feels at home in the outdoors. Her attitude shows in her work.

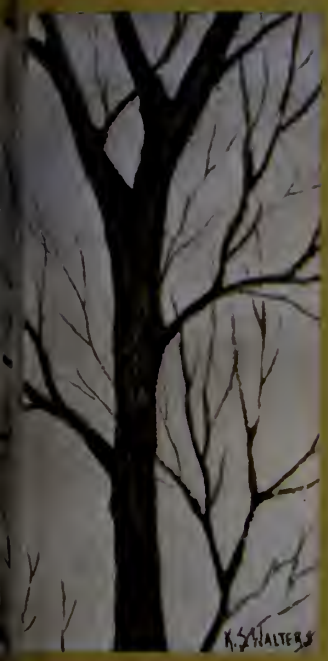
An artist in oils since childhood, her introduction to the world of wildlife art was something of an unusual one. Eight years ago a friend involved with the Ducks Unlimited organization, knowing of her talent as an artist, asked her if she would be interested in painting a duck. Her first effort, according to Richie, was almost a failure. But she kept on. From that beginning, her reputation as an artist of waterfowl has grown to the point that her work is highly prized by the swelling number of wildlife art collectors.

Richie and her husband, an official with Ducks Unlimited, have kept up their association with the group over the years. She has been a sponsor of that organization and was named Ducks Unlimited Richmond Area Artist of the Year in 1973.

A native of Roanoke, Richie currently resides with her family on a farm in Aylett where she reports frequently seeing the subjects she paints, among others, Canada geese, wood ducks and mallards.

Her finely detailed ducks blend well against an unusually realistic background. Although done in watercolors, a medium that generally is used to produce a soft effect, no minute detail is lost in her portrayals of waterfowl.

The overall result is one of grace and beauty, — a true representation of the majestic appeal of waterfowl.


K. S. WALTERS

Still, the building continues. Despite pleas from conservationists, the appeal of the quick dollar is proving too strong a lure. They must discover the value of the wetlands before it is too late to save them.

Photo by Leon Kesteloo

The sheepshead minnow (below) and the striped bass (left) are fish whose life is based in the marsh. Crab eggs (above) are a common sight.

Photo by Jim Lanier, VIMS/Sea Grant Advisory Services

Outdoor Notebook

Common Sense Camouflage

It was only two days until deer season and I was going through my gear for the last time to make sure I had everything. A long time ago on my first whitetail hunt, I had learned how inconvenient it was to be high on a mountain and suddenly discover something had been left at home. Since then, I have always kept a checklist handy to make sure everything essential to the hunt was packed and ready to go well ahead of time.

But you know, sometimes you can have everything you need with you, well organized and convenient, and still not have the proper equipment.

"How's this?" you say. Simple: having all the wrong equipment with you is worse than leaving it at home. It could cost you a trophy, or even your life! I'm speaking here specifically of your camouflage gear.

Deer see in black, white, and shades of grey. A hunter automatically tries to blend his colored clothing into the background, assuming that it will appear the same to a deer. This usually works, as long as you have cloth with a dull finish. However, the introduction of fluorescents for hunter safety have changed the material finish, and the intensity of colors normally seen by the whitetail as dull show up as bright white.

We wanted to see just how effective our gear was, so, armed with the camera, a roll each of black and white and color film, and several assorted and varied colored articles of clothing, we headed to the woods for the ultimate test. The results were really quite astonishing. Clothing that we thought was perfect turned out to be the most conspicuous to a deer, even though visible to other hunters. The question now, was — how to stay visible to other hunters, yet inconspicuous to game.

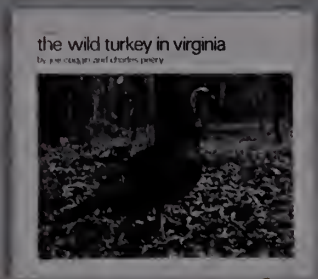
Many manufacturers are now coming out with orange clothing in cotton, giving you the protection of color without the shine, some with a leaf print camouflage pattern on them to help break up your outline. If you already have invested in a good outfit that is solid, you can camouflage it yourself, using a leaf pattern cut from cardboard and a flat brown or black spray paint. (Make sure it's washable.) This method also helps break up the "shiny" fluorescents.

Have you ever stopped to notice how well camouflaged the whitetail deer is? He can step behind a tree or bush and seem to disappear completely, evading most hunters. This brings up the point, as every good hunter knows, that the real key to camouflage is hunter placement. Complete stillness while in the woods brings very little attention from wildlife. Regardless of how you're dressed, hand movements and constant shuffling around will attract attention far more quickly than any color. I once had a turkey fall prey to my rifle, while sitting perfectly still, even though I was wearing a solid fluorescent orange vest, hat, and gloves!

Your best bet for bagging game is to sit, keeping a low profile, with a tree to your back. This helps break your outline and protects your back from stray bullets, especially in a heavily hunted area. A dab of camouflage paint on your face helps, too, as your face shining against a tree will appear out of place.

Once while hunting, my husband was in the process of calling up a turkey only to have another hunter answer, doing a very good imitation of a turkey on the way in. There we were — the perfect triangle — and this fellow was walking slowly toward us completely camouflaged from head to foot, with not a sign of red or orange. Now this may sound perfect for hunting turkeys, knowing the sight these magnificent birds have, but, what about other hunters scattered about? A leg movement here and there through the brush, with an enticing "keow keow" backing it up, would be enough to set off many an itchy trigger finger. Fortunately for this guy, he was in the company of two hunters who never shoot until their quarry is in full view. With more and more people taking to the woods, you have to keep in mind the possibility of at least one other person being somewhere close by.

Stop and think about it. You want that trophy bird or animal, yet, is it worth the risk involved in total camouflage? The next time you're excitedly preparing for your hunt, keep in mind that without some "common sense" camouflage, you may well turn out to be the game!—*Juanita. S. Colvin*



Virginia Turkeys

Virginia Game Commission Biologists Joe Coggin and Charles Peery have co-authored the book *The Wild Turkey in Virginia* in response to the need for such a work.

A must for all fans of the turkey, the book breaks down county by county statistics on our most popular game bird.

Coggin and Peery will also shortly release a book on Virginia's white-tailed deer population.

The book is available at a cost of $1.00 by writing to: Virginia Game Commission, Turkey Book, P. O. Box 11104, Richmond, Virginia, 23230.

State Birds Carved

Dear *Virginia Wildlife:*

My wife, Mary, has a unique project that should be of interest to the bird lovers reading *Virginia Wildlife*. She is hand carving all the state birds — and has completed most of them, as well as many other birds.

As a former art educator and lecturer, she has covered many phases of the arts. But, she says, carving and painting these lifelike birds has been the most interesting and challenging of all.

In researching this field we were surprised to find that this is probably the largest private collection in the country of state birds carved.

The collection was recently shown by the Peninsula Council of the arts and was received favorably.

—*M. E. Quisenberry*

1979 Duck Stamp

Californian native Kenneth L. Michaelson won the coveted Duck Stamp Contest sponsored by the United States Department of the Interior.

Michaelson's entry of a pair of green-winged teal on the water was selected over a record number of entries. The 43 year old artist also won the 1978-79 Duck Stamp Contest in his native state.

Prior to 1949, wildlife artists were commissioned to provide a design for the stamp required for hunters of waterfowl. But since that time, the contest has been held annually, drawing the best known of wildlife artists.

Michaelson's victory was announced on November 9 in Washington. Judges were a panel of prominent artists, conservationists and ornithologists.

Richmond Art Show

Wildfowl artists and carvers will converge on Richmond on February 10 and 11 for the annual Richmond Wildfowl Art and Carving Exposition.

Sponsored by Richmond's Northside Lions Club, the show draws artists and carvers from locations as distant as New York, as well as those from the Carolinas, Maryland, Delaware, the District of Columbia and Pennsylvania.

Inspired by the efforts of Steve Elliot and Tom Loften, two Richmond residents and accomplished artists as well, the Lions Club backed the two up and the show began in 1973.

Such well known artists and carvers as Elliott, Art LaMay, Doc Shoffstall, William Redd Taylor, James Hutcheson, Frank Capetta, Lewis Fristino, Harold Van Dyke, Carl "Spike" Knuth and George Walker will be on hand. There will be a total of fifty or more exhibitors.

A first for this year will be a decoy painting contest. After judging, the birds will be auctioned off and the funds will go to charity, as do all the proceeds from the show.

The Richmond Wildfowl Art and Carving Exposition will be held at the State Fair Grounds in Richmond.

Praise For Farm Families

Dr. James R. Knight, Jr., Chairman of the Commission of Game and Inland Fisheries, praised the Virginia Farm Bureau Federation during an address on November 30, 1978. Knight stated that, "I see a lot of hunters and fishermen as a Commissioner, but it is seldom that I am able to get together with so many people who have done so much for wildlife. The farmer in Virginia is responsible, in large measure, for the abundance of wildlife that we all enjoy."

Dr. Knight explained that the Commission is responsible for the management of some two million acres for wildlife while the "balance of the game is under the control of the cooperating farmers." He added that, "it is not hard then to see why the Virginia Game Commission considers our farm families such an important part of our game management program — a program that would be small indeed without you and the game you support on your lands."

Marlin Hunter Safety Contest

Is it enough to be a safe hunter?

That's the question Hunter Safety students will be asking themselves this winter. It is the topic for essays to be submitted in the Hunter Safety Contest sponsored by Marlin, a well known manufacturer of firearms.

The contest is open to current students in any Hunter Safety course, with the contest having two divisions: junior (through grade 8) and senior (grades 9 through 12).

The deadline for submissions is May 1, 1979. If you're eligible, contact your Hunter Safety Instructor. He can give you details.

Coming Next Month

THE GEESE OF CAMERON STATION
Some Beautiful Visitors to Northern Virginia

OPEN HOUSE
A Family's Experience with Raccoons

TACKLE BOX MAINTENANCE
Tips to Keep Things in Line

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BOATING SAFETY BEGINS ON SHORE

There was a time when most outboard boats could be cartopped or stored at water's edge. As boats grew larger, the boat trailer was invented. It gave the boat owner needed hull support, and a newfound choice of many different boating areas.

Today's modern boat trailers are designed to carry the load safely, but common sense suggests periodic checkups. Here is a checklist to help make your next boat-trailering trip a safe one.

Are rollers, bolsters and other contact points adjusted to boat contour?

Is there proper slack in safety chains to allow maximum turning?

Do lights, brakes, license, etc. meet state legal requirements?

Is the trailer balanced so that the hitch load is within trailer and auto manufacturer's recommendations?

Check to see if the hitch load is within this range with fuel tanks either full or empty. Be sure that the jack will fit the loaded trailer.

Check before and periodically during trip:

Are all parts, nuts and bolts secure?

Are all moving parts lubricated and operating properly?

Are tires, including spare, inflated to proper pressure?

Check for nicks and cuts.

Are all boat tie-downs properly secure? Do the lights and brakes work properly?

Is the motor tight on the transom and locked or secured in position with sufficient road clearance?

Are locks on winch, bunk or tilt mechanisms in proper position?

If baggage is carried in boat, is it evenly distributed and secured?

Check wheel hub with hand during trip. Excessive heat indicates inadequate lubrication and possible bearing damage.

Are fuel tanks closed? Experts recommend that tanks be left empty on long trips and filled upon arrival.

Some states require a driver's mirror on the left side. Be safe and install one on the right side, too.

Drive defensively. Don't forget you're towing a boat and trailer behind you. At least one boater has changed lanes too quickly, causing his boat and trailer to collide with another car.

LAUNCHING TIPS

When launching the boat be sure the car's tires are on firm ground for traction. Try not to back your car in over the exhaust pipe. It's not uncommon to kill an engine and restarts will prove difficult.

Back from the left if the terrain allows. You'll be able to see the rear of the trailer better. Watch the rear end of the trailer and not the rear end of the car when maneuvering.

More accidents causing damage to the trailer hitch occur in launching and retrieving than on the road because of higher stress in jockeying the trailer into position.

It's a good idea to lubricate the trailer's wheel bearings and axles frequently, particularly when the boat is being used in saltwater.

Learn to launch and retrieve your boat in short order, making room quickly for the next in line.

Be Prepared

BY JUANITA F. COLVIN

The second day of deer season was slowly dragging by. It was 3:30 in the late afternoon and I was concentrating solely on the two noisy little squirrels busily playing in front of me. What a racket they were making in the dry leaves! Thoughts of fried squirrel, my trusty 12 gauge at home, and 'where are all the deer?' were running through my mind, when — snap! — a noise behind me. I looked around and saw a curious six-point buck peering at me over the top of a little ridge. I raised my Remington .270 and carefully aimed for the only spot showing to shoot at — right between the eyes. He went down instantly, and I stood there in utter disbelief! My first buck!

I have loved guns of all kinds from the time I was old enough to have one. My mother died when I was five, so I guess it was natural that my Dad bought me toy guns every Christmas. At the age of nine, I received my first B-B rifle, and off to the woods I went!

Many years have passed since then, and now at the age of twenty-six, I was into my second year of really serious deer hunting. My husband of one year and my wonderful father-in-law were introducing me to the fine art of deer hunting, and though my first year was unsuccessful, it had been an enriching experience and this year my enthusiasm was very high.

The three of usually stayed within earshot of one another for two reasons: I was inexperienced, and my father-in-law was getting up in years. We would walk up the mountain in the wee hours before dawn and stay at our chosen stands until meeting time. The second day, however, after eating lunch, I decided to strike out on my own for a few hours.

There he lay. I just had to sit down beside him and try to calm myself and digest everything that had happened in those few fast moments. Also, I had to figure a way to get him off the mountain! The shot had broken up his skull, so I wouldn't be able to drag him by the antlers. Also, I didn't have a rope. The only solution was to drag him by the hind legs, or I should say leg, because I didn't have a sling on my rifle. I decided to wait until I got to camp to field dress him, because I had never field dressed a deer before and I didn't have my knife with me, either.

Rifle in one hand, hind leg in the other, off we went! At 125 pounds, the deer weighed as much as I did. Suddenly it seemed that every little twig had turned into a monstrous obstacle. We'd go three or four feet and his front leg would hang on a tree. I'd lay down my rifle, disengage the hung leg, and start again. Two hours later, and near exhaustion, I finally reached an old logging road behind the camp, put the deer in a ditch, covered him with leaves, and started yelling for Murray to come help. What an evening this had been!

For all you hunters about to strike out on your first lone hunt, be sure to keep the following in mind — being a good shot and getting your deer are only the beginning. Go prepared! Without the proper equipment, you'll find yourself handicapped in more ways than you'd ever think possible. It's not necessary to burden yourself by carrying a lot of unnecessary items just because you might need them. However, many people too often go into the woods without even the bare essentials. It's a good idea to sit down and make a list ahead of time of things you need to take — for the actual hunt itself (such as proper clothing, etc.) and for the actual kill and removal of your game (rope, sling, knife, etc.)

A sling is one of the handiest items you can have. With your rifle out of the way, both hands are free to work with the deer. Quick detachable mounts work the best as they allow you to remove your sling while hunting, yet still have it handy when you need it.

Always carry a rope. A six foot section of lightweight nylon rope takes up very little space and does an excellent job. If you break up the skull (as I did) or get a spike, you'll definitely need a rope. Even if you don't, you'll find dragging a buck out much easier if you loop one end around his neck and tie a short stick on the other end — this allows you to use both hands to pull the deer comfortably. And ladies — much as I hate to say it — don't go alone! I was fortunate to have a lightweight deer and a downhill drag. Had he weighed much more and I'd had any slight incline to pull him up, we might not have gotten out!

Last but not least, a small lightweight nylon day pack (about $4.00 or $5.00 at most sporting goods stores) will hold all of your gear comfortably out of the way. It's terribly hard to walk with all sorts of "odds and ends" bulging out of your pockets. Even if you pack a lunch and thermos or drink, you'll find everything conveniently light and less burdensome.

If you go well prepared, you won't be too tired to enjoy that first buck (or any for that matter!) when the sun finally sets on a successful hunt.

JOHN W. TAYLOR

The Golden-Crowned Kinglet

BY JOHN W. TAYLOR

Next to the hummingbirds, the kinglets are the smallest North American birds. Barely measuring four inches from tail tip to bill tip, they are only one half inch larger than the hummer.

Yet they are among the hardiest of our birds, the golden-crown braving the bitter winters of New England and southern Canada. How do these tiny mites, mere sparks of life, survive the snow, ice and sub-zero temperatures of such northern climes? Where do they spend the long, cold nights?

Even in summer, they seek out the cool forests of the spruce-fir belt. Most of them breed in what zoologists call the Canadian zone, which extends from southern Alaska to Newfoundland. A few remain in the spruce woods that crown the highest Appalachians, even as far as South Carolina. Surprisingly common in parts of the West Virginia highlands, a few spill over into Virginia. They were first found in summer in Highland County in 1952. Since then they have been found nesting in Augusta and Rockingham Counties, and in the vicinity of Burke's Garden in Tazewell County. Other known breeding sites are on Beartown Mountain in Russell County, and on Whitetop and Mt. Rogers.

The nest is placed in a conifer, usually well up near the top. Some may be placed sixty or seventy-five feet high. Globular in shape, they are exquisitely constructed of moss and lichens, lined with soft inner bark and feathers. (One was lined wholly with the downy under feathers of the ruffed grouse.) Deftly placed amid foliage, the kinglet's nest is always well camouflaged.

Nest building begins incredibly early. Even in Nova Scotia, many nests are completed by early April. Large sets of the tiny eggs are laid, eight to ten is the usual number. The eggs are creamy white, with brown and lavender markings. Two broods are raised per season. The young are fed on insects, insect eggs and larvae, the principal food of the adults as well. Apparently very little vegetable matter is eaten, even in winter. They are adept at catching insects in the air, in the manner of flycatchers.

Few people know the song of the golden-crown. Rarely is it heard away from the dark spruce groves, and even there it is likely to go unnoticed, since it is little more than a quiet, high-pitched trill. There are two parts to it: first a few squeaky sibilant notes, followed by a louder, more rapid jumble of notes.

The first part of the song resembles the call note, a thin "seee, seee, seee," which is given the year round. This is the call heard here in the south, where some of the golden-crowns come to spend the colder months.

Most of these migrants reach these parts by mid-October, others may not arrive until late November. While on their winter range, they still show a preference for conifers, but may frequent deciduous and mixed woods, as well. They'll even come into gardens and backyards, but do not visit feeders.

It is their habit at this season to flock with birds of other feathers: chickadees, nuthatches, a brown creeper or two. Together they rove the woodlands, cheerfully sustaining on the meagre fare that is available. The first warm day in March or early April is the signal for them to move north.

Tame and confiding, the golden-crown allows close approach, and is readily identified. The orange and yellow crown of the male and the yellow crown of the female is distinctive, as is the light line over the eye. The crown feathers are often raised like a crest when the birds are excited. Young birds do not have the bright crown, and are not as easy to recognize. These immatures could possibly be confused with the ruby-crowned kinglet. But the latter lacks the eye-stripe, and has instead a prominent eye ring.

The golden-crowned kinglet was described for science by A. H. Lichtenstein, a German theologian and natural historian. His name for the bird, *Regulus satrapa*, is both descriptive and poetic and reflects his knowledge of classical languages. *Regulus* is Latin for "little king" and *satrapa* is the Latinized form of the Greek *satrapes*, "a crown or kingdom."

BOBCATS

Seldom seen, the bobcat is often thought of as something resembling a big kitten that lives in the woods. Actually, bobcats are efficient predators, living comfortably off rabbit and rodent populations. Bobcats also prey on birds. Measuring about a yard long — including six inches of tail — and standing about 23 inches high, a male bobcat at 40 pounds can be a formidable enemy, though he is usually shy and retiring.

Illustrations by Alan Cormon